



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/714,631

11/18/2003

Jin-Seung Sohn

Q78520

3244

23373 7590 09/07/2007  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

MILLER, BRIAN E

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

09/07/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/714,631

**Applicant(s)**

SOHN ET AL.

**Examiner**

Brian E. Miller

**Art Unit**

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 155-177 is/are pending in the application.
- 4a) Of the above claim(s) 159, 160 and 175 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 155-158, 161-174, 176 and 177 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 155-177 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Claims 155-177 are now pending, with claims 159-160, 175 remaining withdrawn due to a previously set forth restriction requirement.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 155-158, 161-174, 177 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. (a) The newly added language to the claims "...when an angular frequency of the disk is greater than a natural frequency of the disk player." is considered to be new matter. Nowhere in the original specification is there a description of a natural frequency of the disk player as a whole, and furthermore, it is not readily apparent what this frequency even is. Each component of the disk player has a different natural frequency.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 177 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 177, appears to reiterate the same general concept of claim 155 from which

Art Unit: 2627

it depends from, i.e., "force provided by a spindle motor, and the center of gravity of said self-compensating dynamic balancer is located opposite to that of said disk with respect to a rotational shaft of said spindle motor by a centrifugal force generated during rotation of said disk, thereby to compensate for vibrations due to an eccentric center of gravity of said disk." And therefore the meets and bounds of this claim cannot be readily ascertained.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 155, 158, 161-165, 169-172, 176-177 are rejected under 35 U.S.C. 102(b) as being anticipated by Hellerich (US 3,854,347). (As per claim 155) Hellerich discloses (see FIGs. 2-5) a self-compensating dynamic balancer apparatus for a disk player which records and reproduces information from a disk installed on the disk player; the apparatus comprising: a self-compensating dynamic balancer 50 locatable co-axial with the rotation axis about which a disk is rotated by rotational components of the disk player and rotates in use with at least one of the rotational components; a mobile unit 52 arranged to be freely movable within a non-magnetic hollow tube (see col. 3, line 58-col 4, line 6) by centrifugal force generated by rotation of the disk such that the center of gravity of the self-compensating dynamic balancer moves to be located opposite to the center of gravity of the disk with respect to the rotation axis when an angular frequency of the disk is greater than a natural frequency of the disk player (as well for

Art Unit: 2627

claim 177 which includes similar reiterated limitations)(which is basic rotational balancing theory well known in the art-see also col. 1, line 63-col. 2, line 10); wherein the mobile unit includes at least one rigid body 52; (as per claim 158) wherein the tube is formed of a body having a race in which the mobile unit is disposed and a cover member which covers the race by coupling to the body, i.e., the body and cover are integrally formed in Hellerich; (as per claim 161) wherein the rigid body is formed into a shape of a spherical body which can roll inside the race (col. 3, line 60); (as per claims 162, 163, 165) wherein the rigid body is formed of a non-magnetic material, e.g., stainless steel (one of SUS300, SUS304, SUS316), in order to avoid being influenced by a magnetic force (see col. 3, line 66); (as per claim 164) wherein the substance, e.g., stainless steel, does not corrode; (as per claim 169) wherein the cross section of the tube enclosing the mobile unit has a shape of rectangular or oval (see FIG. 5 and col. 4, line 48); (as per claims 170, 171 & 172) wherein the tube enclosing the mobile unit is synthetic resin, e.g., plastic (see col. 3, last line), which does not corrode; (as per claim 176) wherein the self-compensating dynamic balancer is formed integrally with the turntable 12 (see FIG. 2).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 156, 157, 168 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellerich in view of Taylor et al (WO 93/23687). For a description of Hellerich, see the rejection, supra. Hellerich is silent as to having a fluid within the hollow tube.

Taylor et al, within the rotational balancing art, discloses a self-compensating dynamic balancer that includes a hollow tube 11, spherical balls 21 and fluid 107 (see FIGs 11&12 and page 16, line 15 thru page 18, line 9). From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the self-compensating dynamic balancer of Hellerich with a fluid, as taught by Taylor et al. The motivation would have been: providing a fluid into the hollow tube with the balls, would have enabled the balls to move within the groove at a slower rotational speed, thereby providing a smoother balancing apparatus. Furthermore, the fluid would also provide an inherent dampening effect to the noise of the rotating balls within the hollow tube as well as providing a reduction in friction, as would have been readily apparent to a skilled artisan.

10. Claims 166-167, 173-174 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellerich. For a description of Hellerich, see the rejection, supra. With respect to the above claims, Hellerich is expressly silent as to coating the rigid body and/or the hollow tube with an anti-oxidation coating, however, it would have been considered obvious to a skilled artisan to have provided such coating, especially if the components, i.e., tube, balls, were originally formed from a corrosive material. As would have been readily apparent, providing such a coating would have prevented corrosion to these components, providing longevity thereof. If provided over the

Art Unit: 2627

materials as disclosed by Hellerich, such a coating would provide inherent lubrication characteristics, as would have been readily apparent by a skilled artisan.

### ***Response to Arguments***

11. Applicant's arguments filed 11/22/06 have been fully considered but they are not persuasive.

A...Applicants' assert that Hellerich fails to teach an aspect of the claim, which is described as the last clause of the claim:

"... wherein said mobile unit is arranged to be freely movable within said non-magnetic hollow tube by centrifugal force generated by rotation of said disk such that the center of gravity of said self-compensating dynamic balancer moves to be located opposite to the center of gravity of said disk with respect to said rotation axis when an angular frequency of the disk is greater than a natural frequency of the disk player."

And further states, "Even though the rotational position of the mass members 52 of *Hellerich* may be alleged to tend to dynamically balance the disk pack when the disk pack rotates, the reference is still Silent about a specific CG location of a balancing device based on the CG of a disk and a rotation axis, The reference does not teach a specific condition of such balancing of the disk pack in rotation."

In response, the Examiner respectfully disagrees that Hellerich does not teach this limitation. The structural limitation needed to meet the claimed function is "said mobile unit arranged to be freely movable within said non-magnetic hollow tube..." which is clearly met by Hellerich. The Examiner maintains that the claimed function (as cited above) is an inherent result of the freely movable bodies within the hollow member when coaxially mounted with the spindle shaft, as

Art Unit: 2627

clearly taught by Hellerich. The cited passage that the Examiner relied upon is col. 1, line 63 to col. 2, line 2, which states in relevant part, "The theory upon which the dynamic balancing device operates is well known to those skilled in the mechanical vibration art..."

The claims do not set forth any additional structure that would somehow operate any differently than the dynamically balancing apparatus as disclosed by Hellerich. Applicant's recitation of the well known theory of dynamically balancing devices does not change the fact that Hellerich, along with most prior art devices, operate and function the same when balancing a rotating body and it is maintained that this functional language is encompassed inherently within the described structure.

**B...**As no specific arguments have been set forth regarding the rejected claims 156-158, 161-174, 176, the Examiner maintains that they are also anticipated/obvious over Hellerich, as set forth, supra.

**C...**Claim 177, besides recitation of a spindle motor, reiterates the same basic concept of independent claim 155, and as such, is not considered to recite any additional patentably distinct features.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, including US Patent to Hirsch (5,099,430) that is cited to discuss dynamic rotation theory well known in the art.



Art Unit: 2627

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

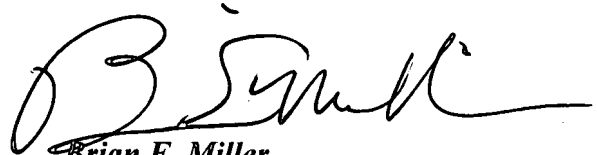
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (571) 272-7578. The examiner can normally be reached on M-TH 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "B. E. Miller", with a stylized flourish at the end.

**Brian E. Miller**  
**Primary Examiner**  
**Art Unit 2627**

BEM  
August 28, 2007